



Test Report issued under the responsibility of:



## TEST REPORT

### IEC 62368-1

## Audio/video, information and communication technology equipment

### Part 1: Safety requirements

Report Number.....: SP1912081L01

Date of issue.....: 2019-12-31

Total number of pages.....: 54

Applicant's name.....: Nicent Technology Co.,Ltd.

Address.....: Rm1602-1, Block D, Information Port, 519080 Hi-Tech Park, Zhuhai,  
P.R.China

#### Test specification:

Standard.....: EN 62368-1:2014+A11:2017

Test procedure.....: CE

Non-standard test method.....: N/A

Test Report Form No.....: IEC62368\_1B

Test Report Form(s) Originator.....: UL(US)

Master TRF.....: 2014-03

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Test Item description .....	DVB	
Trade Mark .....	INFINITY, DIGIMAX	
Manufacturer.....	Same as applicant	
Model/Type reference .....	3000 T2 HEVC, 3001 T2 HEVC, 8000 T2 HEVC, 8001 T2 HEVC	
Ratings .....	Input: 200-240V~, 50/60Hz, Max. 15W USB output: 5Vdc, 1A	
Testing procedure and testing location:		
<input checked="" type="checkbox"/> Testing Laboratory:	DongGuan PuBiao Testing Technology Co., Ltd	
Testing location/ address .....	No. 3, First Floor, Building A, No.30, Minghua Road, Juzhou village, Shijie Town, Dongguan City Guangdong China.	
<input type="checkbox"/> Associated Testing Laboratory:		
Testing location/ address.....		
Tested by (name + signature).....	Colin Huang Project handler	
Approved by (name + signature).....	Eric Liu Reviewer	
<input type="checkbox"/> Testing procedure: TMP/CTF Stage 1		
Testing location/ address.....		
Tested by (name + signature).....		
Approved by (name + signature).....		
<input type="checkbox"/> Testing procedure: WMT/CTF Stage 2		
Testing location/ address.....		
Tested by (name + signature).....		
Witnessed by (name + signature).....		
Approved by (name + signature).....		
<input type="checkbox"/> Testing procedure: SMT/CTF Stage 3 or 4		
Testing location/ address.....		
Tested by (name + signature).....		
Approved by (name + signature).....		
Supervised by (name + signature).....		

<b>List of Attachments (including a total number of pages in each attachment):</b> <ul style="list-style-type: none"> <li>- Attachment 1: National difference (10 pages)</li> <li>- Attachment 2: Photograph (3 pages)</li> </ul>	
<b>Summary of testing:</b> Unless otherwise indicated, all tests were conducted at DongGuan PuBiao Testing Technology Co., Ltd No. 3, First Floor, Building A, No.30, Minghua Road, Juzhou village, Shijie Town, Dongguan City Guangdong China.	
<b>Tests performed (name of test and test clause):</b> STEADY FORCE TESTS, 250N (4.4.4.2, ANNEX T.5) DROP TESTS (4.4.4.3, ANNEX T.7) IMPACT TEST (4.4.4.4, ANNEX T.6) STRESS RELIEF TEST (4.4.4.7, ANNEX T.8) CLASSIFICATION OF ELECTRICAL ENERGY SOURCES (5.2) MAXIMUM OPERATING TEMPERATURE FOR MATERIALS, COMPONENTS AND SYSTEMS (5.4.1.4, 6.3.2, 9.0, Annex B.2) DETERMINATION OF WORKING VOLTAGE (5.4.1.8) BALL PRESSURE TEST (5.4.1.10.3) ANTENNA TERMINAL INSULATION – VOLTAGE SURGE (5.4.5, G.10.3.2) HUMIDITY CONDITIONING (5.4.8) ELECTRIC STRENGTH TEST (5.4.9) SEPARABLE THIN SHEET MATERIAL (5.4.4.6.2) POWER MEASUREMENTS (6.2.2.2, 6.2.2.3) INPUT TEST: SINGLE PHASE (B.2.5) SIMULATED ABNORMAL OPERATING CONDITIONS (B.3) SIMULATED SINGLE FAULT CONDITIONS (B.4) TEST FOR PERMANENCE OF MARKINGS (F.3.10) TRANSFORMER OVERLOAD (ANNEX G.5.3.3) LIMITED POWER SOURCE (ANNEX Q.1) STEADY FORCE TEST, 10 N (ANNEX T.2 , 5.4.2.6, 5.4.3.2, G.15.3.6)	<b>Testing location:</b> DongGuan PuBiao Testing Technology Co., Ltd No. 3, First Floor, Building A, No.30, Minghua Road, Juzhou village, Shijie Town, Dongguan City Guangdong China.
<b>Summary of compliance with National Differences:</b> <b>List of countries addressed: EU</b>  EU=European	

**Copy of marking plate:**

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

The below information directly silk-screen or paste or laser on the enclosure

<p><b>INFINITY</b> DVB</p> <p>Mode: 3000 T2 HEVC</p> <p>Rating: AC 200-240V~ 50/60Hz Max.15W</p> <p>   </p> <p>MADE IN CHINA</p>	<p><b>INFINITY</b> DVB</p> <p>Mode: 3001 T2 HEVC</p> <p>Rating: AC 200-240V~ 50/60Hz Max.15W</p> <p>   </p> <p>MADE IN CHINA</p>
<p><b>DIGIMAX</b> DVB</p> <p>Mode: 8000 T2 HEVC</p> <p>Rating: AC 200-240V~ 50/60Hz Max.15W</p> <p>   </p> <p>MADE IN CHINA</p>	<p><b>DIGIMAX</b> DVB</p> <p>Mode: 8001 T2 HEVC</p> <p>Rating: AC 200-240V~ 50/60Hz Max.15W</p> <p>   </p> <p>MADE IN CHINA</p>

**Notes:**

The above markings are the min. requirements required by the safety standard. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.

Representative marking as above, marking of all models are identical except for model names.



TEST ITEM PARTICULARS:	
Classification of use by.....:	<input checked="" type="checkbox"/> Ordinary person <input type="checkbox"/> Instructed person <input type="checkbox"/> Skilled person <input checked="" type="checkbox"/> Children likely to be present
Supply Connection.....:	<input checked="" type="checkbox"/> AC Mains <input type="checkbox"/> DC Mains <input type="checkbox"/> External Circuit - not Mains connected - <input type="checkbox"/> ES1 <input type="checkbox"/> ES2 <input type="checkbox"/> ES3
Supply % Tolerance .....	<input checked="" type="checkbox"/> +10%/-10% <input type="checkbox"/> +20%/-15% <input type="checkbox"/> + ____ %/ - ____ % <input type="checkbox"/> None
Supply Connection – Type .....	<input checked="" type="checkbox"/> pluggable equipment type A - <input checked="" type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> direct plug-in <input type="checkbox"/> mating connector <input type="checkbox"/> pluggable equipment type B - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> permanent connection <input type="checkbox"/> mating connector <input type="checkbox"/> other: _____
Considered current rating of protective device as part of building or equipment installation.....:	<u>16</u> A (13A for United Kingdom); Installation location: <input checked="" type="checkbox"/> building; <input type="checkbox"/> equipment
Equipment mobility.....:	<input checked="" type="checkbox"/> movable <input type="checkbox"/> hand-held <input checked="" type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in <input type="checkbox"/> rack-mounting <input type="checkbox"/> wall-mounted
Over voltage category (OVC) .....	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other: _____
Class of equipment .....	<input type="checkbox"/> Class I <input checked="" type="checkbox"/> Class II <input type="checkbox"/> Class III
Access location .....	<input type="checkbox"/> restricted access location <input checked="" type="checkbox"/> N/A
Pollution degree (PD) .....	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
Manufacturer's specified maximum operating ambient:	<u>40</u> °C
IP protection class .....	<input type="checkbox"/> IPX0 <input checked="" type="checkbox"/> IP20
Power Systems .....	<input checked="" type="checkbox"/> TN <input type="checkbox"/> TT <input type="checkbox"/> IT - ____ V <sub>L-L</sub>
Altitude during operation (m) .....	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> <u>5000</u> m
Altitude of test laboratory (m) .....	<input type="checkbox"/> 2000 m or less <input checked="" type="checkbox"/> <u>500</u> m
Mass of equipment (kg) .....	<input checked="" type="checkbox"/> <u>Max. 2.73</u> kg
<b>POSSIBLE TEST CASE VERDICTS:</b>	
- test case does not apply to the test object.....:	N/A
- test object does meet the requirement.....:	P (Pass)



- test object does not meet the requirement.....:	F (Fail)
<b>TESTING:</b>	
Date of receipt of test item.....:	2019-12-20
Date (s) of performance of tests.....:	2019-12-20 to 2019-12-31
<b>GENERAL REMARKS:</b>	
<p>“(See Enclosure #)” refers to additional information appended to the report.  “(See appended table)” refers to a table appended to the report.</p> <p>Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p>	
<b>Manufacturer’s Declaration per sub-clause 4.2.5 of IEC60068-2-1:</b>	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
<b>When differences exist; they shall be identified in the General product information section.</b>	
<b>Name and address of factory (ies).....:</b>	Nicent Technology Co.,Ltd. Rm1602-1, Block D, Information Port, 519080 Hi-Tech Park, Zhuhai, P.R.China
<b>GENERAL PRODUCT INFORMATION:</b>	
<b>Product Description –</b> - The product is DVB for use with audio/video, information technology equipment. - The bottom enclosure is secured to top enclosure by buckle. - The specified Max. ambient temperature is +40°C. - The component CY2 is optional.	
<b>Model Differences –</b> - All models are identical except the model name.	
<b>Additional application considerations – (Considerations used to test a component or sub-assembly) –</b> N/A	

**ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:**

(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.)

(Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.)

**Electrically-caused injury (Clause 5):**

(Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification)

Example: +5 V dc input

ES1

Source of electrical energy	Corresponding classification (ES)
All circuitry except output	ES3
Output circuit	ES1

**Electrically-caused fire (Clause 6):**

(Note: List sub-assembly or circuit designation and corresponding energy source classification)

Example: Battery pack (maximum 85 watts):

PS2

Source of power or PIS	Corresponding classification (PS)
All circuits except output circuit	PS3, Arcing PIS, Resistive PIS
Output circuit	PS1

**Injury caused by hazardous substances (Clause 7)**

(Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.)

Example: Liquid in filled component

Glycol

Source of hazardous substances	Corresponding chemical
N/A	N/A

**Mechanically-caused injury (Clause 8)**

(Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.)

Example: Wall mount unit

MS2

Source of kinetic/mechanical energy	Corresponding classification (MS)
Edges and corners of enclosure	MS1
Equipment Mass	MS1

**Thermal burn injury (Clause 9)**

(Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.)

Example: Hand-held scanner – thermoplastic enclosure

TS1

Source of thermal energy	Corresponding classification (TS)
External surface	TS1
Internal Parts/circuit of the unit in enclosure	TS3

**Radiation (Clause 10)**

(Note: List the types of radiation present in the product and the corresponding energy source classification.)

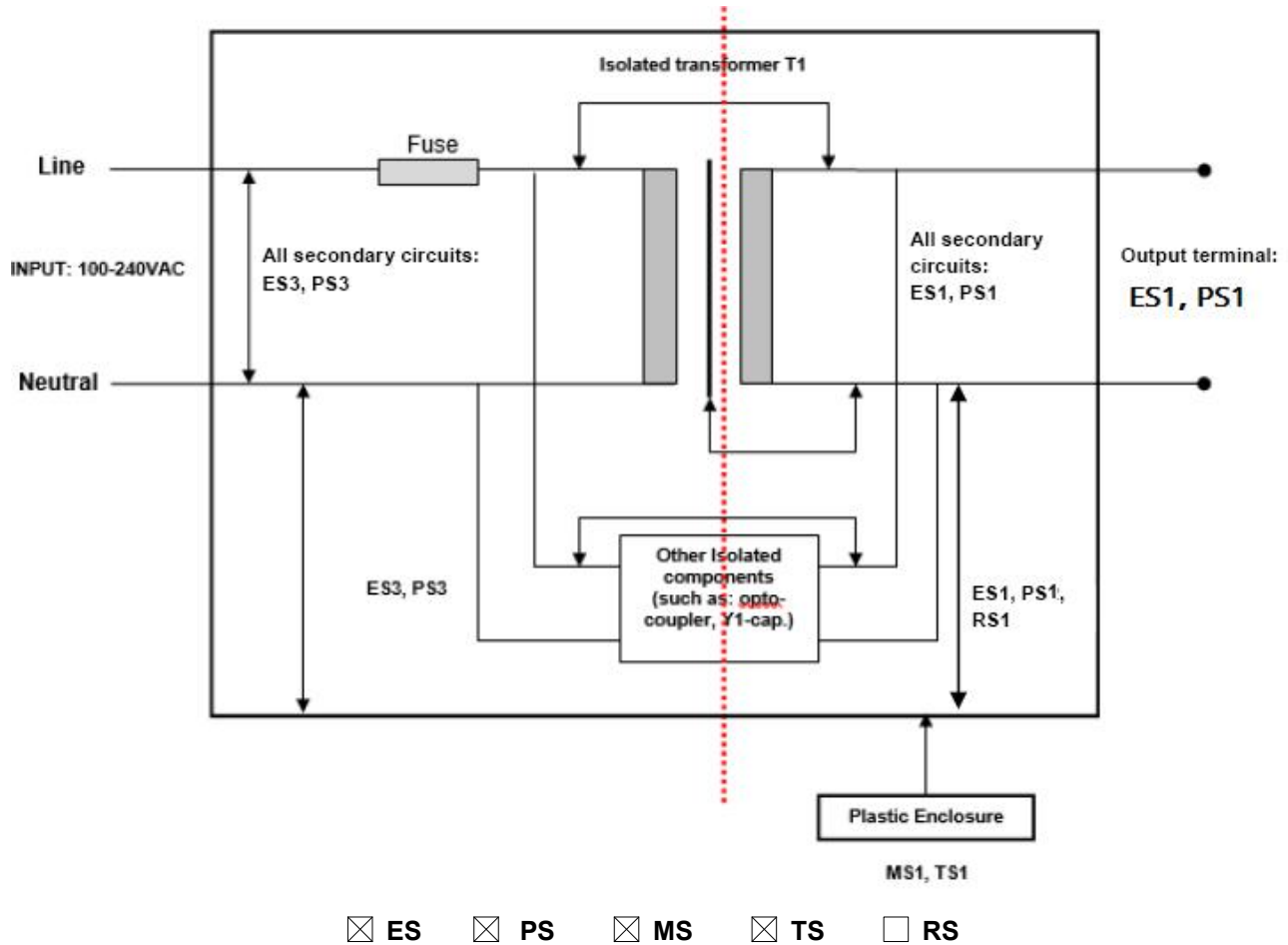
Example: DVD – Class 1 Laser Product

RS1

Type of radiation	Corresponding classification (RS)
N/A	N/A

**ENERGY SOURCE DIAGRAM**

Indicate which energy sources are included in the energy source diagram. Insert diagram below





<b>OVERVIEW OF EMPLOYED SAFEGUARDS</b>				
<b>Clause</b>	<b>Possible Hazard</b>			
5.1	Electrically-caused injury			
Body Part (e.g. skilled)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary person	ES3: primary circuit	N/A	N/A	Enclosure, See 5.4.2, 5.4.3, 5.5.3
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Enclosure	PS3 circuits	See 6.3	V-0	N/A
PCB	PS3 circuits	See 6.3	Min. V-1	N/A
Plastic materials not part of PS3 circuits	PS3 circuits	See 6.3	V-2	N/A
The other components/materials	PS3 circuits	See 6.3	See 6.4.5, 6.4.6	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
N/A	N/A	N/A	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS3: Internal parts/circuits	N/A	N/A	Enclosure
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
Supplementary Information:				
(1) See attached energy source diagram for additional details.				
(2) "N" – Normal Condition; "A" – Abnormal Condition; "S" Single Fault				

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Clause	Requirement + Test	Result - Remark	Verdict
<b>4</b>	<b>GENERAL REQUIREMENTS</b>		P
4.1.1	Acceptance of materials, components and subassemblies	See appended table 4.1.2	P
4.1.2	Use of components	Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment. See also Annex G	P
4.1.3	Equipment design and construction	Evaluation of safeguards regarding limiting the outputs to fulfill ES1 and protection in regard to risk of spread of fire, mechanical and thermal burninjury considered.	P
4.1.15	Markings and instructions.....:	(See Annex F)	P
4.4.4	Safeguard robustness	See below.	P
4.4.4.2	Steady force tests.....:	See Annex T.2, T.5	P
4.4.4.3	Drop tests.....:	See Annex T.7	P
4.4.4.4	Impact tests.....:	See Annex T.6	P
4.4.4.5	Internal accessible safeguard enclosure and barrier tests.....:	The external enclosure cannot be opened without damaging the product.	N/A
4.4.4.6	Glass Impact tests.....:	No such glass used.	N/A
4.4.4.7.4	Thermoplastic material tests.....:	(See Annex T.8)	P
4.4.4.8	Air comprising a safeguard.....:		P
4.4.4.9	Accessibility and safeguard effectiveness	After tests of 4.4.4.2, 4.4.4.3, 4.4.4.7, no safeguard damaged.	P
4.5	Explosion	No explosion occurs during normal/abnormal operation and single fault conditions	P
4.6	Fixing of conductors		N/A
4.6.1	Fix conductors not to defeat a safeguard	Complied.	N/A
4.6.2	10 N force test applied to .....:	Internal components	N/A
4.7	Equipment for direct insertion into mains socket - outlets		N/A
4.7.2	Mains plug part complies with the relevant standard.....:		N/A
4.7.3	Torque (Nm).....:		N/A
4.8	Products containing coin/button cell batteries	No coin/button cell batteries used.	N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children		—

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Clause	Requirement + Test	Result - Remark	Verdict
	removing the battery.....:		
4.8.4	Battery Compartment Mechanical Tests.....:		N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object.....:	No openings	N/A

<b>5</b>	<b>ELECTRICALLY-CAUSED INJURY</b>		P
5.2.1	Electrical energy source classifications.....:	(See appended table 5.2)	P
5.2.2	ES1, ES2 and ES3 limits		P
5.2.2.2	Steady-state voltage and current.....:	See appended table 5.2)	P
5.2.2.3	Capacitance limits.....:		N/A
5.2.2.4	Single pulse limits.....:	No such single pulses generated in the EUT or applied to it.	N/A
5.2.2.5	Limits for repetitive pulses.....:	No such repetitive pulses within the EUT	N/A
5.2.2.6	Ringing signals .....	No such ringing signals within the EUT	N/A
5.2.2.7	Audio signals .....	No such audio signals	N/A
5.3	Protection against electrical energy sources	See below	P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	See only 4.3 and 5.3 to 5.5 which applies to protection between the accessible parts and hazardous parts of other circuits. Except for the model assembled with AC mains bare conductor.	P
5.3.2.1	Accessibility to electrical energy sources and safeguards	Only ES1 circuit can be accessed for this product.	P
5.3.2.2	Contact requirements	No openings.	P
	a) Test with test probe from Annex V.....:	Checked by V.1.2 (figure V.1)	P
	b) Electric strength test potential (V).....:	See appended table 5.4.9	P
	c) Air gap (mm) .....		N/A
5.3.2.4	Terminals for connecting stripped wire	No such terminals.	N/A
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material	The choice and application have taken into account as specified in this Clause 5 and Annex T and natural rubber, hygroscopic materials or asbestos are not used as insulation.	P
5.4.1.3	Humidity conditioning.....:	See Sub-clause 5.4.8	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.4	Maximum operating temperature for insulating materials .....	(See appended table 5.4.1.4)	P
5.4.1.5	Pollution degree.....	2	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound	Pollution degree 2 is applied. No insulating compound applied (however see 5.5.4).	N/A
5.4.1.5.3	Thermal cycling	See above	N/A
5.4.1.6	Insulation in transformers with varying dimensions	No such transformer within the EUT	N/A
5.4.1.7	Insulation in circuits generating starting pulses	No such starting pulses within the EUT	N/A
5.4.1.8	Determination of working voltage	Max.470Vpeak, Max. 250Vrms	P
5.4.1.9	Insulating surfaces		P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	Blade holder	P
5.4.1.10.2	Vicat softening temperature.....		N/A
5.4.1.10.3	Ball pressure .....	Phenolic bobbin material used in transformer which is acceptable without test. For other parts see appended table 5.4.1.10.3	P
5.4.2	Clearances		P
5.4.2.2	Determining clearance using peak working voltage	See appended table 5.4.2.2, 5.4.2.4 and 5.4.3	P
5.4.2.3	Determining clearance using required withstand voltage .....	See appended table 5.4.2.2, 5.4.2.4 and 5.4.3	P
	a) a.c. mains transient voltage.....	2500V for Overvoltage Cat. II	—
	b) d.c. mains transient voltage .....	No such transient	—
	c) external circuit transient voltage.....	No such transient	—
	d) transient voltage determined by measurement .....		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test	Using procedure 2 to determine the clearance according to 5.4.2.3	N/A
5.4.2.5	Multiplication factors for clearances and test voltages.....		N/A
5.4.3	Creepage distances.....	(See appended table 5.4.2.2, 5.4.2.4 and 5.4.3)	P
5.4.3.1	General		P
5.4.3.3	Material Group .....	IIIa&IIIb	—
5.4.4	Solid insulation	See below	P
5.4.4.2	Minimum distance through insulation .....	(See appended table 5.4.4.2)	P
5.4.4.3	Insulation compound forming solid insulation	Approved optocoupler (U29) used	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.4	Solid insulation in semiconductor devices	Approval optocoupler used, see table 4.1.2 for details.	P
5.4.4.5	Cemented joints	No such construction within the EUT	N/A
5.4.4.6	Thin sheet material	See below	P
5.4.4.6.1	General requirements	Two layers of insulation tape between winding and core of transformer is used for reinforced insulation and are not expected to be subject to handling or abrasion during ordinary or instructed person servicing.	P
5.4.4.6.2	Separable thin sheet material	Where two layers are provided as reinforced insulation any one layer passed the electric strength test for reinforced insulation	P
	Number of layers (pcs) ..... :	2	P
5.4.4.6.3	Non-separable thin sheet material	No such thin sheet material within the EUT	N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material..... :	See above	N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components	See G.5.1 and G.6	P
5.4.4.9	Solid insulation at frequencies >30 kHz..... :	(See appended Table 5.4.4.9)	P
5.4.5	Antenna terminal insulation	Performed between mains and output connector which may be connected to an equipment with antenna terminal	P
5.4.5.1	General		P
5.4.5.2	Voltage surge test	Surge test with 50 discharges at a maximum rate of 12/min from a 1nF capacitor charged to 10kV performed. Measured insulation resistance between mains supply to output terminals after the surge test, see below for details.	P
	Insulation resistance (MΩ)..... :	100 MΩ	P
5.4.6	Insulation of internal wire as part of supplementary safeguard..... :	No such insulation of internal wire as part of supplementary safeguard.	N/A
5.4.7	Tests for semiconductor components and for cemented joints	No tests necessary –see only 5.4.4.4.	N/A
5.4.8	Humidity conditioning	see below	P
	Relative humidity (%)..... :	95%	—
	Temperature (°C) ..... :	30°C	—

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Clause	Requirement + Test	Result - Remark	Verdict
	Duration (h) .....	48h	—
5.4.9	Electric strength test.....	(See appended table 5.4.9)	P
5.4.9.1	Test procedure for a solid insulation type test	Compliance was checked immediately following temperature test in 5.4.1.4 and on a sample of the transformer raised to the relevant temperature as measured during that test.	P
5.4.9.2	Test procedure for routine tests	No routine tests considered. To be considered during the relevant national approval.	N/A
5.4.10	Protection against transient voltages between external circuit	No such external circuits	N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test.....		N/A
5.4.10.2.3	Steady-state test.....		N/A
5.4.11	Insulation between external circuits and earthed circuitry.....	No such connections for external circuit applied within the EUT	N/A
5.4.11.1	Exceptions to separation between external circuits and earth	No such connections to external circuit as above.	N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage $U_{op}$ (V).....		—
	Nominal voltage $U_{peak}$ (V).....		—
	Max increase due to variation $U_{sp}$ .....		—
	Max increase due to ageing $\Delta U_{sa}$ .....		—
	$U_{op} = U_{peak} + \Delta U_{sp} + \Delta U_{sa}$ .....		—
5.5	Components as safeguards		
5.5.1	General	See the following details.	P
5.5.2	Capacitors and RC units	Approved capacitors provided. See G.11.1 for compliance and their application.	P
5.5.2.1	General requirement		P
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector.....		N/A
5.5.3	Transformers	(See Annex G.5.3)	P
5.5.4	Optocouplers	(See sub-clause 5.4 or Annex G.12)	P
5.5.5	Relays	No such component provided	N/A
5.5.6	Resistors		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.5.7	SPD's		N/A
5.5.7.1	Use of an SPD connected to reliable earthing	No such construction.	N/A
5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable..... :	No such external circuits.	N/A
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors		N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm <sup>2</sup> ) ..... :		—
5.6.4	Requirement for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm <sup>2</sup> )..... :		—
	Protective current rating (A) ..... :		—
5.6.4.3	Current limiting and overcurrent protective devices		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Requirement		NA
	Conductor size (mm <sup>2</sup> ), nominal thread diameter (mm)..... :		N/A
5.6.5.2	Corrosion		NA
5.6.6	Resistance of the protective system		N/A
5.6.6.1	Requirements		NA
5.6.6.2	Test Method Resistance ( $\Omega$ )..... :		N/A
5.6.7	Reliable earthing		NA
5.7	Prospective touch voltage, touch current and protective conductor current		P
5.7.2	Measuring devices and networks		P
5.7.2.1	Measurement of touch current..... :	(See appended table 5.2)	P
5.7.2.2	Measurement of prospective touch voltage		NA
5.7.3	Equipment set-up, supply connections and earth connections		NA
	System of interconnected equipment (separate connections/single connection)..... :	Single connection.	—
	Multiple connections to mains (one connection at a time/simultaneous connections)..... :		—
5.7.4	Earthed conductive accessible parts..... :		NA
5.7.5	Protective conductor current		NA

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Clause	Requirement + Test	Result - Remark	Verdict
	Supply Voltage (V).....:		—
	Measured current (mA).....:		—
	Instructional Safeguard.....:		N/A
5.7.6	Prospective touch voltage and touch current due to external circuits	No external circuits.	N/A
5.7.6.1	Touch current from coaxial cables		N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits		N/A
5.7.7	Summation of touch currents from external circuits	No external circuits.	N/A
	a) Equipment with earthed external circuits Measured current (mA).....:		N/A
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA).....:		N/A

<b>6</b>	<b>ELECTRICALLY- CAUSED FIRE</b>		<b>P</b>
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		P
6.2.2	Power source circuit classifications	PS (power source) classification determined by measuring the maximum power in Figures 34 and 35 for load and power source circuits.	P
6.2.2.1	General	See the following details.	P
6.2.2.2	Power measurement for worst-case load fault... :	(See appended table 6.2.2)	P
6.2.2.3	Power measurement for worst-case power source fault.....:	(See appended table 6.2.2)	P
6.2.2.4	PS1 .....	(See appended table 6.2.2)	P
6.2.2.5	PS2 .....	(See appended table 6.2.2)	P
6.2.2.6	PS3 .....	The primary circuit considered as PS3.	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS .....	See note to appended table 6.2.3.1	P
6.2.3.2	Resistive PIS .....	All components considered as PIS, see also note to appended table 6.2.3.2	P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials.....:	No ignition and no such temperature attained within the equipment. (See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6)	P
6.3.1 (b)	Combustible materials outside fire enclosure	Only output connector complying with 6.4.6.	P



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Clause	Requirement + Test	Result - Remark	Verdict
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	Method of control fire spread used. Fire enclosure provided.	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards		N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions..... :		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits	PS3 circuits inside.	N/A
6.4.5	Control of fire spread in PS2 circuits		N/A
6.4.5.2	Supplementary safeguards ..... :	See Table 4.1.2 and Annex G	P
6.4.6	Control of fire spread in PS3 circuit	Compliance detailed as follows: - Printed board: rated min. V-1 - Wire insulation: complying with Clause 6. - All other components: at least V-2 except for parts mounted on min. V-1 material or small parts of combustible material) with mass less than 4g) or components complying to relevant IEC standard. - Isolating transformer: complying with G.5.3. - Fire enclosure rated V-0 used.	P
6.4.7	Separation of combustible materials from a PIS	Fire enclosure is provided.	N/A
6.4.7.1	General..... :		N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers	Fire enclosure used	P
6.4.8.1	Fire enclosure and fire barrier material properties	V-0 fire enclosure used.	P
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure	Enclosure material: V-0 without any openings provided.	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		N/A
6.4.8.3.1	Fire enclosure and fire barrier openings		N/A
6.4.8.3.2	Fire barrier dimensions		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm) .....	1 mm in width	P
	Needle Flame test	No test is necessary	N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm) .....	3 mm in any dimension	P
	Flammability tests for the bottom of a fire enclosure .....	No test is necessary	N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c).....		N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating.....	V-0 fire enclosure used.	P
6.5	Internal and external wiring		N/A
6.5.1	Requirements		N/A
6.5.2	Cross-sectional area (mm <sup>2</sup> ) .....		—
6.5.3	Requirements for interconnection to building wiring.....		N/A
6.6	Safeguards against fire due to connection to additional equipment		P
	External port limited to PS2 or complies with Clause Q.1	Output complies with Clause Q.1.	P

<b>7</b>	<b>INJURY CAUSED BY HAZARDOUS SUBSTANCES</b>		N/A
7.2	Reduction of exposure to hazardous substances	No hazardous chemicals within the equipment.	N/A
7.3	Ozone exposure	No ozone production within the equipment.	N/A
7.4	Use of personal safeguards (PPE)		N/A
	Personal safeguards and instructions.....		—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010).....		—
7.6	Batteries.....	No battery used.	N/A

<b>8</b>	<b>MECHANICALLY-CAUSED INJURY</b>		P
8.1	General	No moving parts in the equipment	P
8.2	Mechanical energy source classifications	MS1	P
8.3	Safeguards against mechanical energy sources		N/A
8.4	Safeguards against parts with sharp edges and corners	Edges and corners of the enclosure are rounded and classification as MS1	P
8.4.1	Safeguards		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.5	Safeguards against moving parts	No moving parts.	N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard..... :		—
8.5.4	Special categories of equipment comprising moving parts		N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks..... :		N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard..... :		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N)..... :		N/A
8.5.5	High Pressure Lamps		N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test..... :		N/A
8.6	Stability	Classification MS1 according to table 35, line 5 and no stability requirements.	N/A
8.6.1	Product classification		N/A
	Instructional Safeguard..... :		—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force..... :		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10° tilt..... :		—
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force)..... :		N/A
	Position of feet or movable parts..... :		—
8.7	Equipment mounted to wall or ceiling	No wall or ceiling mounted	N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface) .....		N/A
8.7.2	Direction and applied force..... :		N/A
8.8	Handles strength	No handles provided.	N/A
8.8.1	Classification		N/A
8.8.2	Applied Force .....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.9	Wheels or casters attachment requirements	No wheels or casters.	N/A
8.9.1	Classification		N/A
8.9.2	Applied force..... :		—
8.10	Carts, stands and similar carriers	No carts, stands or similar carriers.	N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard..... :		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force..... :		—
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N)..... :		—
8.10.6	Thermoplastic temperature stability (°C)..... :		N/A
8.11	Mounting means for rack mounted equipment	Not such equipment.	N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable <i>N</i> ..... :		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas.....	No such parts.	N/A
	Button/Ball diameter (mm)..... :		—

<b>9</b>	<b>THERMAL BURN INJURY</b>		<b>P</b>
9.2	Thermal energy source classifications	No part considered to be accessible other than enclosure. The equipment evaluated by temperature test (see table 5.4.1.4).	P
9.3	Safeguard against thermal energy sources	Temperature of enclosure classed as TS1.	P
9.4	Requirements for safeguards		P
9.4.1	Equipment safeguard	Enclosure provided to limit the transfer of thermal energy of internal parts under normal operating conditions and abnormal operating conditions.	P
9.4.2	Instructional safeguard ..... :	Instructional safeguard is not required.	N/A

<b>10</b>	<b>RADIATION</b>		<b>N/A</b>
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Clause	Requirement + Test	Result - Remark	Verdict
10.2	Radiation energy source classification	No such component used	N/A
10.2.1	General classification	See above	N/A
10.3	Protection against laser radiation	No laser radiation	N/A
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault..... :	(See attached laser test report)	N/A
	Instructional safeguard..... :		—
	Tool..... :		—
10.4	Protection against visible, infrared, and UV radiation		N/A
10.4.1	General		N/A
10.4.1.a)	RS3 for Ordinary and instructed persons..... :		N/A
10.4.1.b)	RS3 accessible to a skilled person..... :		N/A
	Personal safeguard (PPE) instructional safeguard..... :		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1.. :		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions ..... :		N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque..... :		N/A
10.4.1.f)	UV attenuation..... :		N/A
10.4.1.g)	Materials resistant to degradation UV..... :		N/A
10.4.1.h)	Enclosure containment of optical radiation..... :		N/A
10.4.1.i)	Exempt Group under normal operating conditions..... :		N/A
10.4.2	Instructional safeguard..... :		N/A
10.5	Protection against x-radiation	No such x-radiation generated from the equipment	N/A
10.5.1	X- radiation energy source that exists equipment :		N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards..... :		N/A
	Instructional safeguard for skilled person..... :		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation..... :		—
	Abnormal and single-fault condition..... :		N/A
	Maximum radiation (pA/kg)..... :		N/A
10.6	Protection against acoustic energy sources	Not such equipment.	N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A)..... :		N/A


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Clause	Requirement + Test	Result - Remark	Verdict
	Output voltage, unweighted r.m.s.....:		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards.....:		N/A
	Equipment safeguard prevent ordinary person to RS2.....:		—
	Means to actively inform user of increase sound pressure.....:		—
	Equipment safeguard prevent ordinary person to RS2.....:		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) $L_{Aeq}$ acoustic pressure output.....:		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A).....:		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A).....:		—

<b>B</b>	<b>NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS</b>		P
B.2	Normal Operating Conditions	See the following details.	P
B.2.1	General requirements.....:	Maximum rated output applied (See appended table)	P
	Audio Amplifiers and equipment with audio amplifiers.....:	Not such equipment.	N/A
B.2.3	Supply voltage and tolerances	Rated voltage $\pm 10\%$	P
B.2.5	Input test.....:	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General requirements.....:	(See appended table B.3 & B.4)	P
B.3.2	Covering of ventilation openings	(See appended table B.3 & B.4)	P
B.3.3	D.C. mains polarity test	The EUT is not connected to a D.C. mains	N/A
B.3.4	Setting of voltage selector.....:	No setting of voltage selector within the EUT	N/A
B.3.5	Maximum load at output terminals.....:	(See appended table B.3&B.4)	P
B.3.6	Reverse battery polarity	No battery within the EUT	N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.	Not such equipment.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
B.3.8	Safeguards functional during and after abnormal operating conditions	All safeguards remained effective.	P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited.....:	No such device used.	N/A
B.4.3	Motor tests	No motors used.	N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature ..... :		N/A
B.4.4	Short circuit of functional insulation	See the following details.	P
B.4.4.1	Short circuit of clearances for functional insulation	(See appended table B.3 &B.4)	P
B.4.4.2	Short circuit of creepage distances for functional insulation	(See appended table B.3 &B.4)	P
B.4.4.3	Short circuit of functional insulation on coated printed boards	No coated printed boards within the EUT	N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors	(See appended table B.3 &B.4)	P
B.4.6	Short circuit or disconnect of passive components	(See appended table B.3 &B.4)	P
B.4.7	Continuous operation of components	The EUT is continuous operating type and no such components intended for short time operation or intermittent operation	N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions	No change to circuits classified in 5.3.	P
B.4.9	Battery charging under single fault conditions.....:	No battery involved in the EUT	N/A
<b>C</b>	<b>UV RADIATION</b>		N/A
C.1	Protection of materials in equipment from UV radiation	No such UV generated from the equipment.	N/A
C.1.2	Requirements	See above.	N/A
C.1.3	Test method	See above.	N/A
C.2	UV light conditioning test	See above.	N/A
C.2.1	Test apparatus	See above.	N/A
C.2.2	Mounting of test samples	See above.	N/A
C.2.3	Carbon-arc light-exposure apparatus	See above.	N/A
C.2.4	Xenon-arc light exposure apparatus	See above.	N/A
<b>D</b>	<b>TEST GENERATORS</b>		P
D.1	Impulse test generators	No such consideration.	N/A
D.2	Antenna interface test generator	See above.	P
D.3	Electronic pulse generator	See above.	N/A
<b>E</b>	<b>TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS</b>		N/A
E.1	Audio amplifier normal operating conditions	Not such equipment.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Audio signal voltage (V)..... :	See above.	—
	Rated load impedance ( $\Omega$ ) ..... :	See above.	—
E.2	Audio amplifier abnormal operating conditions	See above.	N/A
<b>F</b>	<b>EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS</b>		P
F.1	General requirements	See the following details.	P
	Instructions – Language ..... :	English.	—
F.2	Letter symbols and graphical symbols	See the following details.	P
F.2.1	Letter symbols according to IEC60027-1	Letter symbols for quantities and units are complied with IEC 60027-1.	P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific	Graphical symbols are complied with IEC 60417, ISO 3864-2, ISO 7000 or ISO 7010.	P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	Equipment marking is located on the enclosure surface and is easily visible.	P
F.3.2	Equipment identification markings	See the following details.	P
F.3.2.1	Manufacturer identification ..... :	See copy of marking	—
F.3.2.2	Model identification ..... :	See page 2	—
F.3.3	Equipment rating markings	See the following details.	P
F.3.3.1	Equipment with direct connection to mains	The equipment is connected to AC mains supply.	P
F.3.3.2	Equipment without direct connection to mains	See above.	N/A
F.3.3.3	Nature of supply voltage..... :	~	—
F.3.3.4	Rated voltage..... :	200-240V	—
F.3.3.4	Rated frequency..... :	50/60Hz	—
F.3.3.6	Rated current or rated power..... :	Max 25W	—
F.3.3.7	Equipment with multiple supply connections	Only one supply connection.	N/A
F.3.4	Voltage setting device	Auto range and no voltage selector provide within the equipment.	N/A
F.3.5	Terminals and operating devices	See below.	P
F.3.5.1	Mains appliance outlet and socket-outlet markings..... :	No such devices on the equipment.	N/A
F.3.5.2	Switch position identification marking..... :	No such switch on the equipment.	N/A
F.3.5.3	Replacement fuse identification and rating markings..... :	The fuses are located within the equipment and not replaceable by an ordinary person or an instructed person.  The fuse rating marked on PCB with FP1 T2AL250V	P



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Clause	Requirement + Test	Result - Remark	Verdict
F.3.5.4	Replacement battery identification marking.....:	No such battery on the equipment. See sub-clause F.5	N/A
F.3.5.5	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification	See below.	P
F.3.6.1	Class I Equipment		P
F.3.6.1.1	Protective earthing conductor terminal		P
F.3.6.1.2	Neutral conductor terminal	Not such construction	N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC60417-5172)		P
F.3.6.2.1	Class II equipment with or without functional earth	 used	P
F.3.6.2.2	Class II equipment with functional earth terminal marking		N/A
F.3.7	Equipment IP rating marking ..... :	IP20	—
F.3.8	External power supply output marking	See copy of marking	P
F.3.9	Durability, legibility and permanence of marking	Marking is considered to be legible and easily discernible. See also the following details.	P
F.3.10	Test for permanence of markings	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. And then again for 15 sec. With the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade.  After each test, the marking remained legible.	P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking		N/A
	b) Instructions given for installation or initial use		P
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1	No such terminals provided.	N/A
	f) Protective earthing employed as safeguard		N/A
	g) Protective earthing conductor current exceeding ES 2 limits		N/A

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Clause	Requirement + Test		Verdict
	h) Symbols used on equipment	No such symbols used as a safeguard considered.	N/A
	i) Permanently connected equipment not provided with all-pole mains switch	Not permanently connected equipment.	N/A
	j) Replaceable components or modules providing safeguard function	No such markings.	N/A
F.5	Instructional safeguards	No instructional safeguard is considered as necessary.	N/A
	Where "instructional safeguard" is referenced in the test report it specifies the required elements, location of marking and/or instruction	No instructional safeguard required in the equipment.	N/A
<b>G</b>	<b>COMPONENTS</b>		<b>P</b>
<b>G.1</b>	<b>Switches</b>		<b>N/A</b>
G.1.1	General requirements	No switch used.	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
<b>G.2</b>	<b>Relays</b>		<b>N/A</b>
G.2.1	General requirements	No such relay provided within the equipment.	N/A
G.2.2	Overload test	See above.	N/A
G.2.3	Relay controlling connectors supply power	See above.	N/A
G.2.4	Mains relay, modified as stated in G.2	See above.	N/A
<b>G.3</b>	<b>Protection Devices</b>		<b>P</b>
G.3.1	Thermal cut-offs	No thermal cut-off provided within the equipment.	N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)	See above.	N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)	See above.	N/A
G.3.1.2	Thermal cut-off connections maintained and secure	See above.	N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691	No thermal link provided within the equipment.	N/A
G.3.2.1b)	Thermal links tested as part of the equipment	See above.	N/A
	Aging hours (H)..... :		—
	Single Fault Condition..... :		—
	Test Voltage (V) and Insulation Resistance (Ω)..:		—
G.3.3	PTC Thermistors	No PTC thermistor provided within the equipment.	N/A
G.3.4	Overcurrent protection devices		N/A
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		<b>P</b>

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Clause	Requirement + Test	Result - Remark	Verdict
G.3.5.1	Non-resettable devices suitably rated and marking provided		P
G.3.5.2	Single faults conditions.....:	See table B.4	P
<b>G.4</b>	<b>Connectors</b>		P
G.4.1	Spacings	No such connector with insulated surfaces accessible within the EUT	N/A
G.4.2	Mains connector configuration .....	Mains plug complied with National plug standard.	P
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A
<b>G.5</b>	<b>Wound Components</b>		P
G.5.1	Wire insulation in wound components.....	Approved TIW used for secondary winding of transformer	P
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°	Separated by tube and tape between windings	P
G.5.1.2 b)	Construction subject to routine testing	The routine tests are to be considered for the production based on the relevant approval.	N/A
G.5.2	Endurance test on wound components	Not applied for.	N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Time (s).....:		—
	Temperature (°C).....:		—
G.5.2.3	Wound Components supplied by mains	See above.	N/A
<b>G.5.3</b>	<b>Transformers</b>		P
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1).....:	The transformers meet the requirements given in G.5.3.2 and G.5.3.3.	P
	Position.....:	T1	—
	Method of protection .....	See G.5.3.3.	—
G.5.3.2	Insulation	Primary windings and secondary windings are separated by Reinforced insulation (The core is considered as primary part as it is not isolated from Primary)	P
	Protection from displacement of windings.....:	The end-turn of each winding is fixed by insulating tape	—
G.5.3.3	Overload test.....:	(See appended table B.3 & B.4)	P
G.5.3.3.1	Test conditions	Tested in the complete equipment as an SMPS.	P
G.5.3.3.2	Winding Temperatures testing in the unit	(See appended table B.3&B.4)	P

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.3.3.3	Winding Temperatures - Alternative test method	Alternative test method was not considered.	N/A
<b>G.5.4</b>	<b>Motors</b>		N/A
G.5.4.1	General requirements	No motors used.	N/A
	Position .....		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days) .....		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V).....		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h) .....		N/A
	Electric strength test (V).....		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature .....		N/A
	Electric strength test (V) .....		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h).....		N/A
	Electric strength test (V).....		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage .....		—
<b>G.6</b>	<b>Wire Insulation</b>		P
G.6.1	General	Triple insulated winding in T1 secondary windings used as reinforced safeguard in the isolating transformer that has separately complied with Annex J. See Appended table 4.1.2. No other wires used in the EUT.	P
G.6.2	Solvent-based enamel wiring insulation	Insulation does not rely on solvent-based enamel.	N/A
<b>G.7</b>	<b>Mains supply cords</b>		P
G.7.1	General requirements	Approval Mains supply cords provide, see table 4.1.2 for details.	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Type.....:	See above	—
	Rated current (A).....:		—
	Cross-sectional area (mm <sup>2</sup> ), (AWG).....:		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N).....:		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm).....:		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry.....:		N/A
G.7.5	Non-detachable cord bend protection	Not hand-held equipment	N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g) .....		—
	Diameter (m).....:		—
	Temperature (°C).....:		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
<b>G.8</b>	<b>Varistors</b>		N/A
G.8.1	General requirements		N/A
G.8.2	Safeguard against shock		N/A
G.8.3	Safeguard against fire		N/A
G.8.3.2	Varistor overload test.....:		N/A
G.8.3.3	Temporary overvoltage.....:		N/A
<b>G.9</b>	<b>Integrated Circuit (IC) Current Limiters</b>		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.	No IC current limiter provided within the equipment.	N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA .....		—
G.9.1 d)	IC limiter output current (max. 5A).....:		—
G.9.1 e)	Manufacturers' defined drift .....		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.9.4	Test Program 3		N/A
<b>G.10</b>	<b>Resistors</b>		N/A
G.10.1	General requirements	No such component used.	N/A
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
<b>G.11</b>	<b>Capacitor and RC units</b>		P
G.11.1	General requirements	Approval Y1 type capacitor provide, see table 4.1.2 for details.	P
G.11.2	Conditioning of capacitors and RC units		P
G.11.3	Rules for selecting capacitors		P
<b>G.12</b>	<b>Optocouplers</b>		P
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results)..... :	Approved optocoupler (U29) used. Detail see table 4.1.2	P
	Type test voltage Vini .....		—
	Routine test voltage, Vini,b .....		—
<b>G.13</b>	<b>Printed boards</b>		P
G.13.1	General requirements	See the following details.	P
G.13.2	Uncoated printed boards	The insulation between conductors on the outer surfaces of an uncoated printed board or over the outer surface of coated printed boards complied with the minimum clearance and creepage requirements of 5.4.2 and 5.4.3.	P
G.13.3	Coated printed boards	No coated printed board or multilayer board applied for within the equipment.	N/A
G.13.4	Insulation between conductors on the same inner surface	See above.	N/A
	Compliance with cemented joint requirements (Specify construction)..... :		—
G.13.5	Insulation between conductors on different surfaces	See above.	N/A
	Distance through insulation..... :		N/A
	Number of insulation layers (pcs) .....		—
G.13.6	Tests on coated printed boards	See above.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
<b>G.14</b>	<b>Coating on components terminals</b>		N/A
G.14.1	Requirements .....		N/A
<b>G.15</b>	<b>Liquid filled components</b>		N/A
G.15.1	General requirements	No such device provided within the equipment.	N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
<b>G.16</b>	<b>IC including capacitor discharge function (ICX)</b>		N/A
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours		N/A
b)	Impulse test using circuit 2 with $U_c$ = to transient voltage .....		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage .....		—
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
D2)	Capacitance .....		—
D3)	Resistance .....		—
<b>H</b>	<b>CRITERIA FOR TELEPHONE RINGING SIGNALS</b>		N/A
H.1	General	No telephone ringing signal generated within the equipment.	N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringing signal		N/A
H.3.1.1	Frequency (Hz) .....		—
H.3.1.2	Voltage (V) .....		—

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Clause	Requirement + Test	Result - Remark	Verdict
H.3.1.3	Cadence; time (s) and voltage (V) .....		—
H.3.1.4	Single fault current (mA):.....		—
H.3.2	Tripping device and monitoring voltage.....		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V).....		—
<b>J</b>	<b>INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION</b>		<b>P</b>
	General requirements	Triple insulated winding wiring used as reinforced safeguard in the isolating transformer that has been evaluated to Annex J as follows: Requirements of Annex U of IEC 60950-1/A2 or IEC 62368-1 are identical to Annex J of this standard (for wires providing Reinforced insulation). See Table 4.1.2.	P
<b>K</b>	<b>SAFETY INTERLOCKS</b>		<b>N/A</b>
K.1	General requirements	No safety interlock provided within the equipment.	N/A
K.2	Components of safety interlock safeguard mechanism .....		N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
	Compliance.....		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method.....		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location) .....		N/A
K.7.2	Overload test, Current (A).....		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test .....		N/A
<b>L</b>	<b>DISCONNECT DEVICES</b>		<b>P</b>
L.1	General requirements	AC plug used to disconnect from AC mains.	P
L.2	Permanently connected equipment	Not permanently connected equipment.	N/A



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Clause	Requirement + Test	Result - Remark	Verdict
L.3	Parts that remain energized	When AC plug is disconnected no hazardous voltage in the equipment.	N/A
L.4	Single phase equipment	The mains plug disconnects both poles simultaneously.	P
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices	Direct plug-in equipment.	N/A
L.8	Multiple power sources	Only one a.c. mains connection.	N/A
<b>M</b>	<b>EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS</b>		N/A
M.1	General requirements	No battery used.	N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method)... :		N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
M.3.3	Compliance ..... :		N/A
M.4	Additional safeguards for equipment containing secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature..... :		—
M.4.2.2 b)	Single faults in charging circuitry..... :		—
M.4.3	Fire Enclosure		N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation		N/A
M.4.4.3	Drop and charge/discharge function tests		N/A
	Drop		N/A
	Charge		N/A
	Discharge		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method) .....		N/A
M.6.2	Leakage current (mA) .....		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume $V_z$ (m <sup>3</sup> /s).....		—
M.8.2.3	Correction factors.....		—
M.8.2.4	Calculation of distance $d$ (mm) .....		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing) .....		N/A
<b>N</b>	<b>ELECTROCHEMICAL POTENTIALS</b>		N/A
	Metal(s) used.....		—
<b>O</b>	<b>MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES</b>		P
	Figures O.1 to O.20 of this Annex applied.....		—
<b>P</b>	<b>SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS</b>		N/A
P.1	General requirements	No opening of enclosure.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
P.2.2	Safeguards against entry of foreign object		N/A
	Location and Dimensions (mm) ..... :		—
P.2.3	Safeguard against the consequences of entry of foreign object	See above.	N/A
P.2.3.1	Safeguards against the entry of a foreign object	See above.	N/A
	Openings in transportable equipment		N/A
	Transportable equipment with metalized plastic parts..... :		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard) ..... :		N/A
P.3	Safeguards against spillage of internal liquids	No such liquids.	N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts	No such construction.	N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C)..... :		—
	Tr (°C)..... :		—
	Ta (°C)..... :		—
P.4.2 b)	Abrasion testing ..... :		N/A
P.4.2 c)	Mechanical strength testing..... :		N/A
<b>Q</b>	<b>CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING</b>		<b>P</b>
Q.1	Limited power sources	See appended table Annex Q.1	P
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		P
	- Regulating network limited output under normal operating and simulated single fault condition	A regulating network limits the output in compliance with table Q.1 both under normal operating conditions and after any single fault.	P
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method	See appended table Annex Q.1	P
Q.2	Test for external circuits – paired conductor cable	No such circuit for connection to the EUT	N/A
	Maximum output current (A) ..... :		—
	Current limiting method..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
<b>R</b>	<b>LIMITED SHORT CIRCUIT TEST</b>		N/A
R.1	General requirements		N/A
R.2	Determination of the overcurrent protective device and circuit	See above.	N/A
R.3	Test method Supply voltage (V) and short-circuit current (A)). ..... :	See above.	N/A
<b>S</b>	<b>TESTS FOR RESISTANCE TO HEAT AND FIRE</b>		N/A
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material..... :		—
	Wall thickness (mm)..... :		—
	Conditioning (°C)..... :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material..... :		—
	Wall thickness (mm)..... :		—
	Conditioning (°C)..... :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material..... :		—
	Wall thickness (mm)..... :		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials		N/A
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material..... :		—
	Wall thickness (mm)..... :		—
	Conditioning (test condition), (°C)..... :		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A
<b>T</b>	<b>MECHANICAL STRENGTH TESTS</b>		<b>P</b>
T.1	General requirements		P
T.2	Steady force test, 10 N .....	(See appended table T.2)	P
T.3	Steady force test, 30 N .....		N/A
T.4	Steady force test, 100 N .....		N/A
T.5	Steady force test, 250 N .....	(See appended table T.5)	P
T.6	Enclosure impact test		P
	Fall test	(See appended table T.6)	P
	Swing test		N/A
T.7	Drop test .....	(See appended table T.7)	P
T.8	Stress relief test.....	(See appended table T8)	P
T.9	Impact Test (glass)	No glass used.	N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J).....		—
	Height (m).....		—
T.10	Glass fragmentation test.....		N/A
T.11	Test for telescoping or rod antennas	No such antennas provided within the equipment.	N/A
	Torque value (Nm) .....	See above.	—
<b>U</b>	<b>MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION</b>		<b>N/A</b>
U.1	General requirements	No CRT provided within the equipment.	N/A
U.2	Compliance and test method for non-intrinsically protected CRTs	See above.	N/A
U.3	Protective Screen.....	See above.	N/A
<b>V</b>	<b>DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)</b>		<b>P</b>
V.1	Accessible parts of equipment	No access with test probes to any hazardous parts.	P
V.2	Accessible part criterion		P

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Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	Table: List of critical components				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1</sup>
Plastic enclosure	CHI MEI CORPORATION	PA-765(+)	V-0, 80°C, min. thickness: 1.5mm	UL 94	UL
EU plug of power supply cord	Shenzhen Hong Yun Electron Co., Ltd.	HYP-201	Rated 2.5A, 250VAC	IEC/EN 0620-1, EN 50075	VDE
(Alternative)	Dongguan Shengpeng Electronic Co., Ltd.	SP-201	Rated 2.5A, 250VAC	IEC/EN 0620-1, EN 50075	VDE
(Alternative)	Interchangeable	Interchangeable	Rated 2.5A, 250VAC	IEC/EN 0620-1, EN 50075	VDE
EU power supply cord	Dongguan Shengpeng Electronic Co., Ltd.	H03VVH2-F	2 x 0.5 mm <sup>2</sup>	IEC/EN 50525-2-11	VDE
(Alternative)	Shenzhen Baohing Electric Wire & Cable Manufacture Co., Ltd.	H03VVH2-F	2 x 0.5 mm <sup>2</sup>	IEC/EN 50525-2-11	VDE
(Alternative)	Interchangeable	H03VV-F, H03VVH2-F, H05VV-F, H05VVH2-F	2 x 0.5 mm <sup>2</sup>	IEC/EN 50525-2-11	VDE
AC terminal	POWER ACT ENTERPRISES LTD	FT1870802	--	UL 1997	UL
PCB	KINGBOARD LAMINATES HOLDINGS LTD	KB-5150	V-0 , min. 130°C	UL 94	UL
(Alternative)	GANZHOU BEYOND SCI-TECH CO LTD	BY-001	V-0 , min. 130°C	UL 94	UL
(Alternative)	Interchangeable	Interchangeable	V-1 or better , min. 130°C	UL 94	UL
Fuse (FP1)	Conquer Electronics Co., Ltd.	PGU	T2AL, 250VAC	IEC60127-1, IEC60127-3	VDE
(Alternative)	Zhongshan Lanbao Electrical Appliances Co., Ltd.	RTI-10	T2AL, 250VAC	IEC60127-1, IEC60127-3	VDE
Bridge Y capacitor (CY2) (optional)	Yinan Don's Electronic Component Co., Ltd.	CT81	Max. 1500pF, Min. 250Vac, Min. 125 °C, Y1 type	IEC/EN 60384-14	VDE
Optocoupler (U29)	Everlight Electronics Co., Ltd.	EL817	Cr>7.0mm, Cl>7.0mm, Distance>0.4mm, 100°C	IEC/EN 60747-5-2	VDE 132249
Transformer (T1)	SHENZHEN MENGDI TECHNOLOGY CO., LTD.	LST19-1	Class B	--	Tested with appliance



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Clause	Requirement + Test		Result - Remark		Verdict
- Bobbin	Chang Chun Plastics Co Ltd	T375J	Phenolic, V-0, 150 °C, min. thickness: 0.45mm	UL 94	UL
- Magnet Wire	CHENG DU SOUTH-WEST ELECTRIC LTD CO	PEW	130°C	UL 1446	UL
(Alternative)	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL
- Insulation Tape	SUZHOU MAILADUONA ELECTRIC MATERIAL CO LTD	JY312#	130°C	UL 510	UL
(Alternative)	Interchangeable	Interchangeable	130°C	UL 510	UL
- Tubing	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD	RSFR-H	VW-1, 600V, 125°C	UL 224	UL
(Alternative)	Interchangeable	Interchangeable	VW-1, Min. 300V, Min. 125°C	UL 224	UL
-Varnish	Interchangeable	Interchangeable	130°C	UL 1446	UL
Supplementary information:					
1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests			N/A
(The following mechanical tests are conducted in the sequence noted.)				
4.8.4.2	TABLE: Stress Relief test			—
Part		Material	Oven Temperature (°C)	Comments
4.8.4.3	TABLE: Battery replacement test			—
Battery part no.....:				—
Battery Installation/withdrawal		Battery Installation/Removal Cycle		Comments
		1		
		2		
		3		
		4		
		5		
		6		
		8		
		9		
		10		

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Clause	Requirement + Test	Result - Remark	Verdict	
4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests		N/A	
(The following mechanical tests are conducted in the sequence noted.)				
4.8.4.4	TABLE: Drop test		—	
Impact Area		Drop Distance	Drop No.	Observations
			1	
			2	
			3	
4.8.4.5	TABLE: Impact			—
Impacts per surface		Surface tested	Impact energy (Nm)	Comments
4.8.4.6	TABLE: Crush test			—
Test position		Surface tested	Crushing Force (N)	Duration force applied (s)
Supplementary information:				

4.8.5	<b>TABLE: Lithium coin/button cell batteries mechanical test result</b>			N/A
Test position	Surface tested	Force (N)	Duration force applied (s)	
Supplementary information:				

5.2	Table: Classification of electrical energy sources						P
5.2.2.2 – Steady State Voltage and Current conditions							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
1	264Vac/60Hz	Output “+” to “-”	Normal	5.02Vdc	--	--	ES1
			Abnormal (OL output)	5.02Vdc	--	--	



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Clause		Requirement + Test		Result - Remark			Verdict
			Single fault – SC/OC (D27 SC)	0Vdc	--	--	
			Single fault – SC/OC (U29 Pin 1-2 SC)	0Vdc	--	--	
			Single fault – SC/OC (U29 Pin 3-4 SC)	0Vdc	--	--	
			Single fault – SC/OC (U29 Pin 1 OC)	0Vdc	--	--	
			Single fault – SC/OC (U29 Pin 3 OC)	0Vdc	--	--	
			Single fault – SC/OC (R383 SC)	0Vdc	--	--	
2	264Vac/60Hz	Output to Earth	Normal	168Vpk	0.26mA <sub>pk</sub> (#)	53.2K	ES1
			Abnormal ( OL Output)	--	0.26mA <sub>pk</sub> (#)	53.2K	
3	264Vac/60Hz	T1 pin 6 to pin 8	Normal	38.2V <sub>rms</sub>	--	53.2K	ES1
			Abnormal	--	--	--	
			Single fault – SC/OC (D27 SC)	0	--	--	
			Single fault – SC/OC (U29 Pin 1-2 SC)	0	--	--	
			Single fault – SC/OC (U29 Pin 3-4 SC)	0	--	--	
			Single fault – SC/OC (U29 Pin 1 OC)	0	--	--	
			Single fault – SC/OC (U29 Pin 3 OC)	0	--	--	
			Single fault – SC/OC (R383 SC)	0	--	--	
Supplementary information: - SC - Short-circuited; OC - Open-circuited. - #: Current (U <sub>2</sub> / 500 peak value) is measured using the measuring network specified in Figure 4, IEC 60990:1999. -- Bridge Y1-capacitor CY2= 1500pF.							

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

## 5.2.2.3 - Capacitance Limits

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class
				Capacitance, nF	Upk (V)	
--	--	--	Normal	--	--	--
			Abnormal	--	--	
			Single fault – SC/OC	--	--	
Test Conditions: Normal – Abnormal – Supplementary information: SC=Short Circuit, OC=Open Circuit, OL=Over load						

<b>5.4.1.4, 6.3.2, 9.0, B.2.6</b>	<b>TABLE: Temperature measurements</b>					<b>P</b>
	Supply voltage (V) .....	180V/60Hz	--	264V/50Hz	--	—
	Ambient T <sub>min</sub> (°C) .....	See below	--	See below	--	—
	Ambient T <sub>max</sub> (°C) .....	See below	--	See below	--	—
	T <sub>ma</sub> (°C) .....	40.0	--	25.0	--	—
Maximum measured temperature T of part/at:		T (°C)				Allowed T <sub>max</sub> (°C)
Input wire		49.8	--	48.7	--	Ref.
CN1		94.1	--	84.5	--	Ref.
EC11		92.0	--	80.1	--	105
CY2		82.9	--	78.0	--	125
U29		76.0	--	76.7	--	100
T1 winding		108.0	--	105.4	--	110
T1 Core		106.3	--	102.0	--	110
C277		87.9	--	86.7	--	105
PCB under U25		95.7	--	79.6	--	130
PCB under U26		93.3	--	93.8	--	130
PCB under U23		97.3	--	99.8	--	130
PCB under U6		73.6	--	73.1	--	130
Enclosure insider near T1 top		83.9	--	81.2	--	Annex T.8
Enclosure outsider near T1 top		70.9	--	69.5	--	77
Enclosure insider near T1 bottom		72.0	--	66.8	--	Annex T.8

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Clause	Requirement + Test			Result - Remark			Verdict
Enclosure outsider near T1 bottom	62.4	--	58.5	--	77		
Ambient	40.0	--	40.0	--	--		
--	--	--	--	--	--		
Enclosure outsider near T1 top	55.9	--	54.5	--	77		
Enclosure outsider near T1 bottom	47.4	--	43.5	--	77		
Ambient	25.0	--	25.0	--	--		
Supplementary information:							
Temperature T of winding:	t <sub>1</sub> (°C)	R <sub>1</sub> (Ω)	t <sub>2</sub> (°C)	R <sub>2</sub> (Ω)	T (°C)	Allowed T <sub>max</sub> (°C)	Insulation class
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
Supplementary information:							
Note 1: T <sub>ma</sub> should be considered as directed by applicable requirement							
Note 2: T <sub>ma</sub> is not included in assessment of Touch Temperatures (Clause 9)							
Note 3: Thermocouple method used							
Note 4: The maximum ambient temperature specified by manufacturer is 40°C							

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics		N/A
Penetration (mm)..... :			—
Object/ Part No./Material	Manufacturer/t rademark	T softening (°C)	
--	--	--	
--	--	--	
supplementary information:			

5.4.1.10.3	TABLE: Ball pressure test of thermoplastics			P
Allowed impression diameter (mm) ..... :		≤ 2 mm		—
Object/Part No./Material	Manufacturer/trademark	Test temperature (°C)	Impression diameter (mm)	
AC terminal (Type: FT1870802)	POWER ACT ENTERPRISES LTD	125	1.0	
Supplementary information:				
The bobbin materials of transformer is phenolic, no test is needed.				

<b>5.4.2.2, 5.4.2.4 and 5.4.3</b>	<b>TABLE: Minimum Clearances/Creepage distance</b>						P
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequenc y (kHz) <sup>1</sup>	Required cl (mm)	cl (mm) <sup>2</sup>	Required <sup>3</sup> cr (mm)	cr (mm)
Line and Neutral before FP1	420	240	0.06	1.3	4.2	2.4	4.2
Two terminals of FP1	420	240	0.06	1.3	3.1	2.4	3.1

IEC 62368-1							
Clause	Requirement + Test			Result - Remark			Verdict
Primary component to enclosure outside accessible part	420	240	53.2	2.6	5.0	4.8	5.0
CY2 two terminals	420	240	53.2	2.6	6.7	4.8	6.7
U29 two terminals	420	240	53.2	2.6	6.7	4.8	6.7
Primary trace to secondary trace under T1	476	250	53.2	2.6	9.7	5.0	9.7
T1 primary winding to secondary winding/pin	476	250	53.2	2.6	5.2	5.0	5.2
T1 core to secondary winding/pin	476	250	53.2	2.6	5.2	5.0	5.2
Supplementary information: Note 1: Only for frequency above 30 kHz Note 2: See table 5.4.2.4 if this is based on electric strength test Note 3: Provide Material Group: IIIb 1) Core of transformer T1 is considered as primary part. 2) The secondary winding wire of T1 is approved reinforced insulation wire 3) If no specified, the worst condition was considered.							

5.4.2.3	TABLE: Minimum Clearances distances using required withstand voltage				P
	Overvoltage Category (OV):				II
	Pollution Degree:				2
Clearance distanced between:		Required withstand voltage	Required cl (mm)	Measured cl (mm)	
See table 5.4.2.2, 5.4.2.4 and 5.4.3 above.		2500Vpeak	1.5 for BI 3.0 for RI	See table 5.4.2.2, 5.4.2.4 and 5.4.3 above.	
Supplementary information: Refer Table 5.4.2.2, 5.4.2.4 and 5.4.3					

5.4.2.4	TABLE: Clearances based on electric strength test			N/A
Test voltage applied between:		Required cl (mm)	Test voltage (Kv) peak/ r.m.s. / d.c.	Breakdown Yes / No
--		--	--	--
--		--	--	--
Supplementary information: Not used the alternative method to determine the clearances.				

<b>5.4.4.2, 5.4.4.5 c) 5.4.4.9</b>	<b>TABLE: Distance through insulation measurements</b>					P	
Distance through insulation di at/of:		Peak voltage (V)	Frequency (kHz)	Material	Required DTI (mm)	DTI (mm)	
Enclosure		476	56.2	Plastic	0.4	1.5	
Bobbin of transformer		476	56.2	Plastic	0.4	0.45	
Optocoupler		476	56.2	Plastic	0.4	Min. 0.4	

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

<b>5.4.9</b>	<b>TABLE: Electric strength tests</b>			<b>P</b>
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Functional:				
L and N (fuse out)		DC	2500	No
Reinforced:				
L/N to output		DC	4000	No
L/N to enclosure(with metal foil)		DC	4000	No
Transformer T1: primary to secondary winding pin		DC	4000	No
Transformer T1: secondary winding pin to core		DC	4000	No
1 layer of insulation tape #		DC	4000	No
Routine Tests:				
--		--	--	--
--		--	--	--
Supplementary information:				
1) # Test repeated for all alternate materials listed in table 4.1.2.				
2) The routine test would be conducted in the factory.				
3) Alternating polarity for electric strength test of dc voltage.				
4) Core of transformer T1 is considered as primary part.				

5.5.2.2	TABLE: Stored discharge on capacitors					N/A
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification	
--	--	--	--	--	--	
--	--	--	--	--	--	

Supplementary information:

X-capacitors installed for testing are:

☐ bleeding resistor rating:

☐ ICX:

Notes:

A. Test Location:

Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth

B. Operating condition abbreviations:

N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition

<b>5.6.6.2</b>	<b>TABLE: Resistance of protective conductors and terminations</b>	<b>N/A</b>
----------------	--	------------

IEC 62368-1				
Clause	Requirement + Test		Result - Remark	Verdict
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)
--	--	--	--	--
Supplementary information:				

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part		N/A
Supply voltage.....:			—
Location		Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7	Touch current (mA)
		1	--
		2	--
		3	--
		4	--
		5	--
		6	--
		7	--
Supplementary Information:			
Notes: [1] Supply voltage is the anticipated maximum Touch Voltage [2] Earthed neutral conductor [Voltage differences less than 1% or more] [3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3 [4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable. [5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.			

6.2.2	Table: Electrical power sources (PS) measurements for classification				P
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s*)	PS Classification
Output	Normal condition	Power (W) :	7.27	--	PS1
		V <sub>A</sub> (V) :	4.91	--	
		I <sub>A</sub> (A) :	1.48	--	
Output	Single fault (short circuit – D27)	Power (W) :	0+	--	PS1
		V <sub>A</sub> (V) :	0+	--	
		I <sub>A</sub> (A) :	0+	--	
Output	Single fault	Power (W) :	0+	--	PS1

IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
	(short circuit – U29 Pin 1-2)	VA (V) :	0+	--	
		IA (A) :	0+	--	
Output	Single fault (short circuit – U29 Pin 3-4)	Power (W) :	0+	--	PS1
		VA (V) :	0+	--	
		IA (A) :	0+	--	
Output	Single fault (open circuit – U29 Pin 1)	Power (W) :	0+	--	PS1
		VA (V) :	0+	--	
		IA (A) :	0+	--	
Output	Single fault (open circuit – U29 Pin 3)	Power (W) :	0+	--	PS1
		VA (V) :	0+	--	
		IA (A) :	0+	--	
Output	Single fault (short circuit R383)	Power (W) :	0+	--	PS1
		V <sub>A</sub> (V) :	0\$	--	
		I <sub>A</sub> (A) :	0\$	--	
Supplementary Information: (*) Measurement taken only when limits at 3 seconds exceed PS1 limits (+) Unit shut down, no hazard (\$) FP1 opened immediately, U25 and U26 damaged, No hazard.					

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)				P
	Location	Open circuit voltage After 3 s (V <sub>p</sub> )	Measured r.m.s current (I <sub>rms</sub> )	Calculated value (V <sub>p</sub> x I <sub>rms</sub> )	Arcing PIS? Yes / No
	All internal circuits/components	--	--	--	Yes (declaration)
Supplementary information: An Arcing PIS requires a minimum of 50 V (peak) a.c. or d.c. An Arcing PIS is established when the product of the open circuit voltage (V <sub>p</sub> ) and normal operating condition rms current (I <sub>rms</sub> ) is greater than 15.					

6.2.3.2	Table: Determination of Potential Ignition Sources (Resistive PIS)					P
Circuit Location (x-y)		Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No
All internal circuits/components		--	--	--	--	Yes (declaration)

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

## Supplementary Information:

A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter.

If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification.

A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, or (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault.

8.5.5	TABLE: High Pressure Lamp		N/A
Description		Values	Energy Source Classification
Lamp type..... :			—
Manufacturer..... :			—
Cat no..... :			—
Pressure (cold) (MPa)..... :			MS_
Pressure (operating) (MPa)..... :			MS_
Operating time (minutes)..... :			—
Explosion method..... :			—
Max particle length escaping enclosure (mm). :			MS_
Max particle length beyond 1 m (mm)..... :			MS_
Overall result .....			
Supplementary information:			

<b>B.2.5</b>	<b>TABLE: Input test</b>						P
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
180V/50Hz	0.225	--	15.9	--	FP1	0.225	Normal working With load at 5Vdc, 1A
180V/60Hz	0.232	--	16.0	--	FP1	0.232	Normal working With load at 5Vdc, 1A
200V/50Hz	0.175	--	15.8	15	FP1	0.175	Normal working With load at 5Vdc, 1A
200V/60Hz	0.182	--	15.9	15	FP1	0.182	Normal working With load at 5Vdc, 1A
240V/50Hz	0.149	--	15.9	15	FP1	0.149	Normal working With load at 5Vdc, 1A
240V/60Hz	0.150	--	15.9	15	FP1	0.150	Normal working With load at 5Vdc, 1A



IEC 62368-1							
Clause	Requirement + Test				Result - Remark		Verdict
B.2.5	TABLE: Input test						P
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
264V/50Hz	0.144	--	16.0	--	FP1	0.144	Normal working With load at 5Vdc,1A
264V/60Hz	0.139	--	16.0	--	FP1	0.139	Normal working With load at 5Vdc,1A
Supplementary information: Equipment may be have rated current or rated power or both. Both should be measured							

<b>B.3</b>	<b>TABLE: Abnormal operating condition tests</b>							<b>P</b>
Ambient temperature (°C) .....					See below			—
Power source for EUT: Manufacturer, model/type, output rating ..					--			—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Output	OL	264	350min	FP1	0.144A to 0.155A to 0.157A to 0.010A	1. T1 winding 2. T1 core 3. PCB 4. Enclosure outside 5. Ambient	1.119.2 °C 2.115.6 °C 3.110.1 °C 4.78.0 °C 5.25.0 °C	Output current >1.45 A circuit protect operated. NB, NC no hazards.
Transformer	OL	264	520min	FP1	0.144A to 0.206A to 0.239A to 0.010A	1. T1 winding 2. T1 core 3. PCB 4. Enclosure outside 5. Ambient	1.127.4 °C 2.124.1 °C 3.120.2 °C 4.89.5 °C 5.25.0 °C	Output current >2.68 A circuit protect operated. NB, NC no hazards.
Output	SC	264	10min	FP1	0.144 to 0.010	--	--	Unit shut down, NB NC, no hazards.

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Clause	Requirement + Test	Result - Remark	Verdict

## Supplementary information:

Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column "Abnormal/Fault." Specify if test condition by indicating "Abnormal" then the condition for a Clause B.3 test or "Single Fault" then the condition for Clause B.4.

SC – Short Circuit

OL - Overload

NB - No indication of dielectric breakdown

NC – Cheesecloth remained intact

NT - Tissue paper remained intact

Output circuit is under ES1 limit.

Max. temperature of abnormal condition:

B.4		TABLE: Fault condition tests						P
Ambient temperature (°C) .....					20 - 25			—
Power source for EUT: Manufacturer, model/type, output rating ..					--			—
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
U25 (+ to -)	SC	264	1S	FP1	0.144 to 0	--	--	FP1 open immediately, U25 damaged, NB, NC, no hazard.
EC11	SC	264	1S	FP1	0.144 to 0	--	--	FP1 open immediately, U25 damaged, NB, NC, no hazard.
U26 pin 5,6,7,8 to pin 1	SC	264	1S	FP1	0.144 to 0	--	--	FP1 open immediately, U25 and U26 damaged, NB, NC, no hazard.
U26 pin 5,6,7,8 to pin 2	SC	264	1S	FP1	0.144 to 0	--	--	FP1 open immediately, U25 and U26 damaged, NB, NC, no hazard.
U26 pin 5,6,7,8 to pin 3	SC	264	1S	FP1	0.144 to 0	--	--	FP1 open immediately, U25 and U26 damaged, NB, NC, no hazard.
U26 pin 5,6,7,8 to pin 4	SC	264	1S	FP1	0.144 to 0	--	--	FP1 open immediately, U25 and U26 damaged, NB, NC, no hazard.

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Clause	Requirement + Test				Result - Remark			Verdict
R383	SC	264	1S	FP1	0.144 to 0	--	--	FP1 open immediately, U25 and U26 damaged, NB, NC, no hazard.
T1 Pin 1 to Pin 2	SC	264	10min	FP1	0.144 to 0.010	--	--	Unit shutdown immediately, recoverable, NB, NC, no hazard.
T1 Pin 3 to Pin 5	SC	264	10min	FP1	0.144 to 0.010	--	--	Unit shutdown immediately, recoverable, NB, NC, no hazard.
T1 Pin 6 to Pin 8	SC	264	10min	FP1	0.144 to 0.010	--	--	Unit shutdown immediately, recoverable, NB, NC, no hazard.
D27	SC	264	10min	FP1	0.144 to 0.010	--	--	Unit shutdown immediately, recoverable, NB, NC, no hazard.
C277	SC	264	10min	FP1	0.144 to 0.010	--	--	Unit shutdown immediately, recoverable, NB, NC, no hazard.
<p>Supplementary information:</p> <p>SC – Short Circuit</p> <p>OC – Open Circuit</p> <p>OL – Overload</p> <p>NB - No indication of dielectric breakdown</p> <p>NC – Cheesecloth remained intact</p> <p>Output circuit is under ES1 limit.</p> <p>After each of above test unit can pass the dielectric strength test specified in table 5.4.9</p> <p>If the fuse opened during the faults, the tests were repeated one more time with all source listed in the table 4.1.2 and with same result.</p>								

IEC 62368-1									
Clause	Requirement + Test			Result - Remark				Verdict	
<b>Annex M</b>	<b>TABLE: Batteries</b>								N/A
The tests of Annex M are applicable only when appropriate battery data is not available									
Is it possible to install the battery in a reverse polarity position?..... :									
	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition									
Max. current during fault condition									
Test results:								Verdict	
- Chemical leaks									
- Explosion of the battery									
- Emission of flame or expulsion of molten metal									
- Electric strength tests of equipment after completion of tests									
Supplementary information:									

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Clause	Requirement + Test	Result - Remark	Verdict

<b>Annex M.4</b>	<b>Table: Additional safeguards for equipment containing secondary lithium batteries</b>				N/A
Battery/Cell No.	Test conditions	Measurements			Observation
		U	I (A)	Temp (C)	
-	Normal	-	-	-	-
-	Abnormal	-	-	-	-
-	Single fault –SC/OC	-	-	-	-
Supplementary Information:					
Battery identification	Charging at $T_{lowest}$ (°C)	Observation	Charging at $T_{highest}$ (°C)	Observation	
-	-	-	-	-	
Supplementary Information:					

Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)					P
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U <sub>oc</sub> (V)	I <sub>sc</sub> (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
Output	Normal operation	5.02	1.48	8	7.27	100
Output	D27 SC	0#	0#	8	0#	100
Output	U29 Pin 1-2 SC	0#	0#	8	0#	100
Output	U29 Pin 3-4 SC	0#	0#	8	0#	100
Output	U29 Pin 1 OC	0#	0#	8	0#	100
Output	U29 Pin 3 OC	0#	0#	8	0#	100
Output	R4 SC	0\$	0\$	8	0\$	100
Supplementary Information: SC=Short circuit, OC=Open circuit # Unit shut down, no hazard \$ FP1 opened immediately, U25 and U26 damaged, No hazard.						

<b>T.2, T.3, T.4, T.5</b>	<b>TABLE: Steady force test</b>					<b>P</b>
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation	



IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
Internal Components	--	--	10	5	No reduce the clearance and creepage distances
External enclosure (Top, Side, Bottom)	*	1.5	250	5	Enclosure remained intact
Supplementary information: * Enclosure material listed in table 4.1.2					

T.6, T.9	TABLE: Impact tests				N/A
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
Top	*	1.5	1300	No damaged, no hazard	
Side	*	1.5	1300	No damaged, no hazard	
Bottom	*	1.5	1300	No damaged, no hazard	
Supplementary information: * Enclosure material listed in table 4.1.2					

T.7	TABLE: Drop tests				P
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
Top	*	1.5	1000	No damaged, no hazard	
Side	*	1.5	1000	No damaged, no hazard	
Bottom	*	1.5	1000	No damaged, no hazard	
Supplementary information:					
* Enclosure material listed in table 4.1.2					

T.8	TABLE: Stress relief test					P
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Enclosure	*	1.5	94	7	No damaged, no hazard	
Supplementary information: * Enclosure material listed in table 4.1.2						

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

## ATTACHMENT TO TEST REPORT

### IEC 62368-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment - Part 1: Safety requirements)

Differences according to.....: EN 62368-1:2014+A11:2017

Attachment Form No.....: EU\_GD\_IEC62368\_1B\_II

Attachment Originator.....: Nemko AS

Master Attachment.....: Date 2017-09-22

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	<b>CENELEC COMMON MODIFICATIONS (EN)</b>					
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed "Z".					
CONTENTS	<b>Add</b> the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords					
	<b>Delete</b> all the "country" notes in the reference document (IEC 62368-1:2014) according to the following list:					N/A
	0.2.1	Note	1	Note 3	4.1.15	Note
	4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c
	5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note
	5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3
	5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4
	10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3
	For special national conditions, see Annex ZB.					

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
1	<p><b>Add</b> the following note:</p> <p>NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.</p>		P
4.Z1	<p><b>Add</b> the following new subclause after 4.9:</p> <p>To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. <b>mains</b>, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for <b>pluggable equipment type B</b> or <b>permanently connected equipment</b>, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for <b>pluggable equipment type A</b> the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>		P
5.4.2.3.2.4	<p><b>Add</b> the following to the end of this subclause:</p> <p>The requirement for interconnection with <b>external circuit</b> is in addition given in EN 50491-3:2009.</p>		N/A
10.2.1	<p>Add the following to <sup>c)</sup> and <sup>d)</sup> in table 39:</p> <p>For additional requirements, see 10.5.1.</p>		N/A



IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	<p><b>Add</b> the following after the first paragraph:  <i>For RS 1 compliance is checked by measurement under the following conditions:</i></p> <p><i>In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or presets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.</i></p> <p>NOTE Z1 Soldered joints and paint lockings are examples of adequate locking.</p> <p><i>The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm<sup>2</sup>, at any point 10 cm from the outer surface of the apparatus.</i></p> <p><i>Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.</i></p> <p><i>For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.</i></p> <p>NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.</p>		N/A
10.6.1	<p><b>Add</b> the following paragraph to the end of the subclause:  EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.</p>		N/A
10.Z1	<p><b>Add</b> the following new subclause after 10.6.5.  <b>10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz</b></p> <p>The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz).</p> <p>For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body-mounted devices, attention is drawn to EN 50360 and EN 50566</p>		N/A
G.7.1	<p><b>Add</b> the following note:  NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.</p>		P

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Bibliography	<p><b>Add</b> the following standards:</p> <p><b>Add</b> the following notes for the standards indicated:</p> <p>IEC 60130-9 NOTE Harmonized as EN 60130-9.</p> <p>IEC 60269-2 NOTE Harmonized as HD 60269-2.</p> <p>IEC 60309-1 NOTE Harmonized as EN 60309-1.</p> <p>IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series.</p> <p>IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4.</p> <p>IEC 60664-5 NOTE Harmonized as EN 60664-5.</p> <p>IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified).</p> <p>IEC 61508-1 NOTE Harmonized as EN 61508-1.</p> <p>IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1.</p> <p>IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4.</p> <p>IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6.</p> <p>IEC 61643-1 NOTE Harmonized as EN 61643-1.</p> <p>IEC 61643-21 NOTE Harmonized as EN 61643-21.</p> <p>IEC 61643-311 NOTE Harmonized as EN 61643-311.</p> <p>IEC 61643-321 NOTE Harmonized as EN 61643-321.</p> <p>IEC 61643-331 NOTE Harmonized as EN 61643-331.</p>		P
<b>ZB</b>	<b>ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)</b>		
4.1.15	<p><b>Denmark, Finland, Norway and Sweden</b></p> <p>To the end of the subclause the following is added:</p> <p><b>Class I pluggable equipment type A</b> intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and <b>accessible</b> parts, have a marking stating that the equipment shall be connected to an earthed <b>mains</b> socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In <b>Denmark</b>: "Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord."</p> <p>In <b>Finland</b>: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"</p> <p>In <b>Norway</b>: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In <b>Sweden</b>: "Apparaten skall anslutas till jordat uttag"</p>		N/A
4.7.3	<p><b>United Kingdom</b></p> <p>To the end of the subclause the following is added:</p> <p>The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex</p>		P

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.2.2.2	<p><b>Denmark</b></p> <p>After the 2nd paragraph add the following: A warning (marking <b>safeguard</b>) for high <b>touch current</b> is required if the <b>touch current</b> exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>		N/A
5.4.11.1 and Annex G	<p><b>Finland and Sweden</b></p> <p>To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> <li>• two layers of thin sheet material, each of which shall pass the electric strength test below, or</li> <li>• one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.</li> </ul> <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> <li>• passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and</li> <li>• is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV.</li> </ul> <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> <li>• the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11;</li> <li>• the additional testing shall be performed on all the test specimens as described in EN 60384-14;</li> </ul> <p>the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.</p>		N/A
5.5.2.1	<p><b>Norway</b></p> <p>After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).</p>		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.6	<b>Finland, Norway and Sweden</b> To the end of the subclause the following is added: Resistors used as <b>basic safeguard</b> or bridging <b>basic insulation</b> in <b>class I pluggable equipment type A</b> shall comply with G.10.1 and the test of G.10.2.		N/A
5.6.1	<b>Denmark</b> <b>Add</b> to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. <i>Justification:</i> In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N/A
5.6.4.2.1	<b>Ireland and United Kingdom</b> After the indent for <b>pluggable equipment type A</b> , the following is added: – the <b>protective current rating</b> is taken to be 13 A, this being the largest rating of fuse used in the <b>mains</b> plug.		N/A
5.6.5.1	To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm <sup>2</sup> to 1,5 mm <sup>2</sup> in cross-sectional area.		N/A
5.7.5	<b>Denmark</b> To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the <b>protective conductor current</b> exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.1	<p><b>Norway and Sweden</b></p> <p>To the end of the subclause the following is added: The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system.</p> <p>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)”</p> <p>NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway): “Apparater som er koplet til beskyttelsesjord via nettplogg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.”</p> <p>Translation to Swedish: “Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”</p>		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.2	<p><b>Denmark</b></p> <p>To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .</p>		N/A
B.3.1 and B.4	<p><b>Ireland and United Kingdom</b></p> <p>The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of <b>direct plug-in equipment</b>, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the <b>direct plug-in equipment</b>, until the requirements of Annexes B.3.1 and B.4 are met</p>		N/A
G.4.2	<p><b>Denmark</b></p> <p>To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a <i>Justification:</i> Heavy Current Regulations, Section 6c</p>		N/A



IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	<b>United Kingdom</b> To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		P
G.7.1	<b>United Kingdom</b> To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		P
G.7.1	<b>Ireland</b> To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard		P
G.7.2	<b>Ireland and United Kingdom</b> To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm <sup>2</sup> is allowed for equipment which is rated over 10 A and up to and including 13 A.		P

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		
10.5.2	<p><b>Germany</b></p> <p>The following requirement applies:</p> <p>For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking.</p> <p><i>Justification:</i></p> <p>German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM.</p> <p><b>NOTE</b> Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int +49-531-592-6320, Internet: <a href="http://www.ptb.de">http://www.ptb.de</a></p>		N/A





Figure 1. Overall view of unit



Figure 2. Overall view of unit



Figure 3. Overall view of unit



Figure 4. Internal view of unit



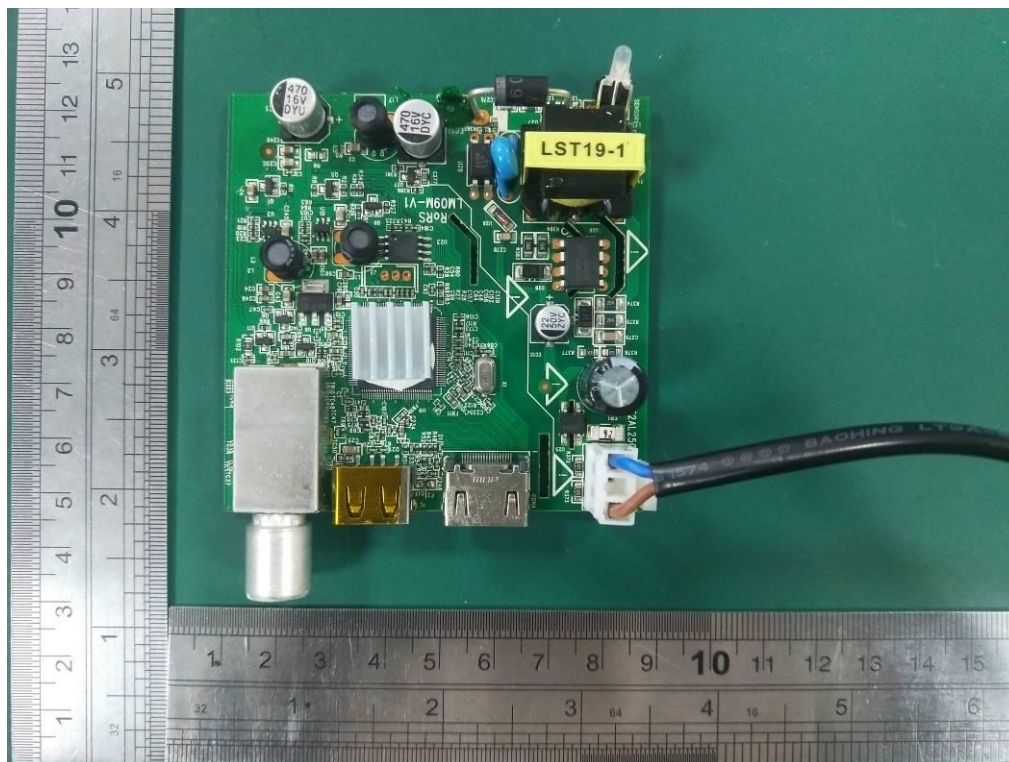


Figure 5. Top view of PCB

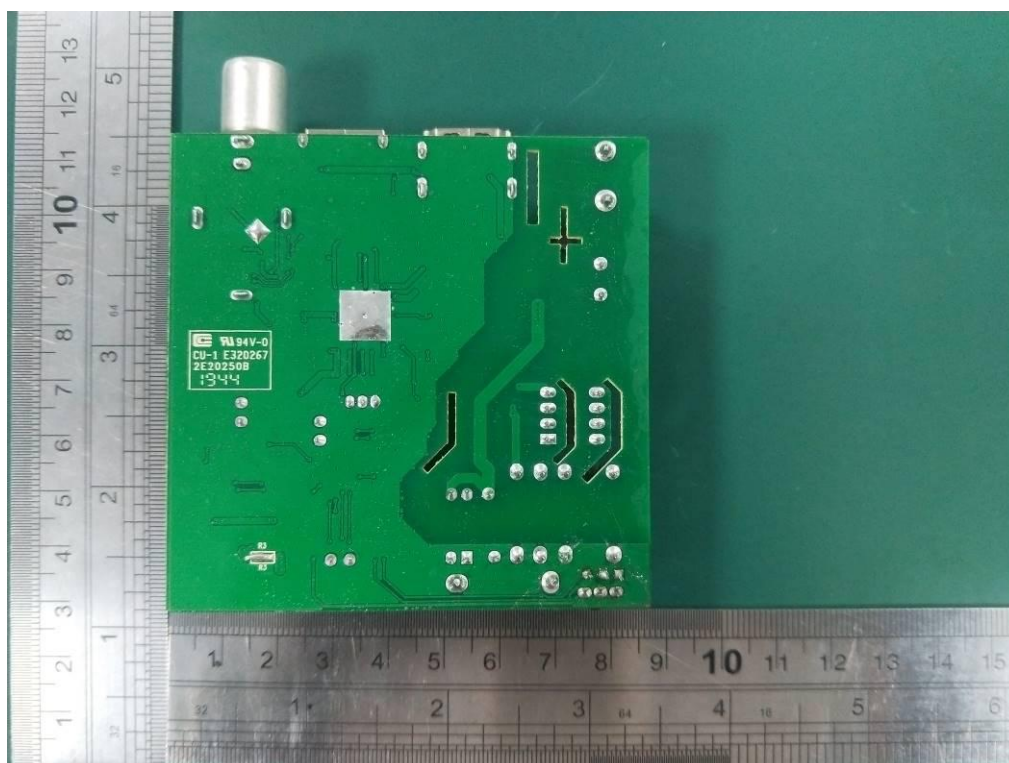


Figure 6. Bottom view of PCB